

more detail below, removal of the § 103(a) rejection of claims 1-4, 8-15, 19-21, 23-26, and 30-32 is respectfully requested.

To establish a *prima facie* obviousness of a claimed invention, all claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974), MPEP 2143.03. Obviousness cannot be established by combining or modifying the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion or incentive to do so. *In re Bond*, 910 F. 2d 81, 834, 15 USPQ2d 1566, 1568 (Fed. Cir. 1990). The cited art does not teach or suggest all limitations of the currently pending claims, some distinctive limitations of which are set forth in more detail below.

Claim 1 recites:

1. A method for scanning for an object within a region, comprising:
scanning the region using a conformal scanning scheme;
determining one or more characteristics of the object in response to said scanning;
and
generating output indicating the one or more characteristics of the object.

The cited art does not teach or suggest scanning the region using a conformal scanning scheme. As is well known in the art, the term “conformal” refers to the property of preserving angles between corresponding curves. As Applicants state (Page 33, paragraph 3):

“A mapping $w = f(z)$ defined on a region D that is part of the complex plane is said to be angle preserving, or conformal, at z_0 if it preserves angles between oriented curves in magnitude as well as in orientation. If f is a conformal mapping then orthogonal curves are mapped onto orthogonal curves.”

Thus, a conformal transform may be used to map a first curve to a second curve while preserving angles. Applicants are unclear as to what is meant by the statement in the Office Action regarding the system disclosed by Thompson that “the microscope lens mounting are conformal type.”

Thompson discloses a system and method for determining pore-dependent properties of a microporous solid by measurement pore microstructure (Col. 1, lines 8-10). While Thompson does describe “scanning the surface of a sample of the solid with a microscope operated at a first selected magnification to generate a microscope output signal indicative of geometric features of the sample intersecting a path on the surface” (Col. 17, lines 43-47), nowhere does Thompson teach or suggest *scanning the region using a conformal scanning scheme*. Applicants respectfully suggest that, while scanning itself is well-known in the art, scanning a region using a conformal scanning scheme is both novel and useful.

The Office Action further cites the system of Franck, asserting that “it would have been obvious to one of ordinary skill in the art ... to modify Thompson to have the geometry mapping and application with subset of points and data as taught by Franck in order to determine the exact location in one, two and three dimensional space coordinate system.”

Applicants note that Franck teaches “a method for determining a mapping between coordinates relative to a body and corresponding coordinates in a three-dimensional image of the body in stereotactic surgery.” (Abstract, first sentence). More specifically, Franck describes attaching an anchored pointing device to an object, such as a human head or body, scanning the object, including scanning markers affixed to the object, to generate a three dimensional image of the object, then using an articulated arm anchored to the object to determine respective locations and orientations of the scanning markers in the image. The scanning marker positions/orientations on the object and the scanning marker positions/orientations in the image are then used to compute a conformal mapping between the object and the image. Thus, the system and method of Franck—scans the object in order to compute a conformal map. In other words, in the system and method taught by Franck, the conformal map is *not* used to generate a scanning path.

Additionally, the Franck system relates to the determination of a conformal mapping based on scanned points and the resulting image points. Franck neither teaches nor suggests using a conformal map to transform a scan path to a conformal scan curve based on a characteristic geometry of the object.

Thus, not only does the cited art (Thompson and Franck) not teach or suggest using a conformal scanning scheme, but there is no teaching, suggestion, or motivation to combine the art to teach this limitation. Thompson specifically teaches scanning an object with a microscope, with no mention or reference to a conformal scanning scheme. Therefore, there is no motivation within Thompson to scan the region using a conformal scanning scheme. Furthermore, there is no discussion or motivation within Franck to scan the region based on a conformal scanning scheme. Therefore, the cited art cannot be combined to teach the limitations of the presently claimed case.

For at least the reasons cited above, claim 1 is asserted to be patentably distinct from the cited art. Claims 2-11 are dependent from claim 1, and therefore claims 2-11 are patentably distinct over the cited art for at least the same reasons as that claim. Accordingly, removal of the § 103(a) rejection of claims 1-11 is respectfully requested. Claims 12 and 23 include similar limitations to claim 1, and therefore, the above arguments similarly apply. Thus, for at least the reasons given above, claims 12 and 23 are asserted to be patentably distinct from the cited art. Claims 13-22 are dependent from claim 12, and claims 24-33 are dependent from claim 23, and therefore claims 13-22 and claims 24-33 are patentably distinct over the cited art for at least the same reasons as those claims.

Dependent claims 22 and 33 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Thompson in view of Sakamoto (U.S. Patent 4,511,989). Applicants respectfully disagree. As described above, Thompson neither teaches nor suggests *scanning the region using a conformal scanning scheme*. Applicants further note that Sakamoto teaches a linear interpolation method for signals used in a color picture processing machine, and makes no reference to *scanning the region using a conformal scanning scheme*. While Sakamoto does disclose a four-dimensional interpolation unit space (Abstract), no mention is made of a scanning region *wherein the region has a*

dimensionality greater than three. In other words, the four-dimensional interpolation unit space of Sakamoto is unrelated to the scanning region of *dimensionality greater than three*, as claimed by Applicants. Thus, Applicants respectfully submit that neither Thompson nor Sakamoto, either singly or in combination, teaches or suggests the limitations of claims 22 and 33. Thus, for at least the reasons given above, claims 22 and 33 are asserted to be patentably distinct from the cited art, and removal of the § 103(a) rejection of claims 22 and 33 is respectfully requested.

Dependent claims 5, 16, and 27 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Thompson in view of Walsh (U.S. Patent 4,231,661). Applicants respectfully disagree. As noted above, Thompson neither teaches nor suggests *scanning the region using a conformal scanning scheme*. Furthermore, Thompson neither teaches nor suggests a method of scanning *wherein the first scanning curve minimizes one or more of angle deviations and curvature*. Applicants further note that Walsh discloses a radial scanner, and makes no reference to *scanning the region using a conformal scanning scheme*. Nor does the system of Walsh include the limitation that *the first scanning curve minimizes one or more of angle deviations and curvature*. Rather, in the system of Walsh, “the dimensions and orientations of the elements of the scanner may be selected to minimize deviation of the incident beam from a target point”, i.e., the system of Walsh minimizes *deviation of the incident beam*, as opposed to minimizing angle deviations and/or curvature of the scanning curve. Thus, Applicants respectfully submit that neither Thompson nor Walsh, either singly or in combination, teaches or suggests the limitations of claims 5, 16, and 27. Thus, for at least the reasons given above, claims 5, 16, and 27 are asserted to be patentably distinct from the cited art, and removal of the § 103(a) rejection of claims 5, 16, and 27 is respectfully requested.

Finally, dependent claims 6, 7, 17, 18, 28, and 29 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Thompson in view of Toraichi (U.S. Patent 5,572,605). Applicants respectfully disagree. As noted above, Thompson neither teaches nor suggests *scanning the region using a conformal scanning scheme*. Further, Thompson neither teaches nor suggests a method of scanning *wherein the conformal curve has a*

maximum curvature below a specified curvature value, nor wherein the first scanning curve is an optimum scanning curve for a first geometry. Applicants further note that Toraichi teaches a system and method for inputting, compressing and outputting characters, illustrations, drawings and logomarks, and makes no reference to *scanning the region using a conformal scanning scheme.* Additionally, the system or method of Toraichi specifically does not include the limitation that *the conformal curve has a maximum curvature below a specified curvature value.* Neither does the system or method of Toraichi include the limitation that *the first scanning curve is an optimum scanning curve for a first geometry.* Thus, Applicants respectfully submit that neither Thompson nor Toraichi, either singly or in combination, teaches or suggests the limitations of claims 6, 7, 17, 18, 28, and 29. Thus, for at least the reasons given above, claims 6, 7, 17, 18, 28, and 29 are asserted to be patentably distinct from the cited art, and removal of the § 103(a) rejection of claims 6, 7, 17, 18, 28, and 29 is respectfully requested.

Thus, for at least the reasons given above, removal of the § 103(a) rejection of claims 1-33 is respectfully requested.

CONCLUSION

Rejection of claims 1-33 under 35 U.S.C. § 103(a) have been responded to. This response, therefore, constitutes a complete response to all issues raised in the Office Action mailed June 12, 2002. In view of the remarks traversing the rejections presented in the Office Action, pending claims 1-33 are in condition for allowance.

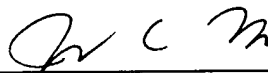
Applicants submit the application is in condition for allowance, and an early notice to that effect is requested.

If any extensions of time (under 37 C.F.R. § 1.136) are necessary to prevent the above referenced application(s) from becoming abandoned, Applicant(s) hereby petition for such extensions. If any fees are due, the Commissioner is authorized to charge said fees to Conley, Rose, & Tayon, P.C. Deposit Account No. 50-1505/5150-53101/JCH.

Also enclosed herewith are the following items:

- ☒ Return Receipt Postcard
- ☐ Request for Approval of Drawing Changes
- ☐ Notice of Change of Address
- ☐ Check in the amount of \$ for fees ().
- ☐ Other:

Respectfully submitted,



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Date: 7/23/2002